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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,391	07/26/2004	Jong Wook Seo	1751-361	3468

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EXAMINER

MOON, SEOKYUN

ART UNIT PAPER NUMBER

2629

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/502,391		SEO ET AL.	
	<b>Examiner</b> Seokyun Moon		<b>Art Unit</b> 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/26/2004</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____. |
|--|---|

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-19** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The aspect of the invention disclosed in claims 1 and 11, "... *and if the diode is turned off and the light emitting device is turned on, the charged electric charge is discharged through the light emitting device.*" cannot be achieved without having the prior condition of the invention disclosed in the claims, "*if the diode is turned on and the light emitting device is turned off, an electric charge which corresponds to a difference between a voltage level of the control signal and a voltage level of the data signal, is charged,...*" since an electric charge corresponding to a difference between a voltage

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level of the control signal and a voltage level of the data signal is required to be charged prior to be discharged.

Furthermore, the aspect of the invention disclosed in the claims 1 and 11, "*if the diode is turned on and the light emitting device is turned off, an electric charge which corresponds to a difference between a voltage level of the control signal and a voltage level of the data signal, is charged, and if the diode is turned off and the light emitting device is turned on, the charged electric charge is discharged through the light emitting device.*" is not consistent with the aspect of the invention disclosed in the specification of the application [App.: Pg. 5 Line 27 – Pg. 7 Line 16].

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms used in the claims 1 and 11, "*and if*" [*Clm. 1 Line 12*] does not indicate clearly the timing of discharging the charged electric charge relative to the timing of charging the capacitor.

To be consistent with the specification of the application, "*and if*" will be interpreted as "*and then if*" for further examination purpose.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1, 2, 5, 11, 12, and 15** are rejected under 35 U.S.C. 102(e) as being anticipated by Numao (U.S. Pub. No. 2001/0054711 A1, herein after referred to as "Numao").

As to **claim 1**, Numao [*Pg. 1 Par. (0001)*] [*Fig. 1 or 5*] teaches a circuit for driving a light emitting device ("*organic EL element OL<sub>ij</sub>*") having a first pole ("*anode*" or "*cathode*" of the *organic EL element OL<sub>ij</sub>*") and a second pole ("*cathode*" or "*anode*" of the *organic EL element OL<sub>ij</sub>*") opposite to the first pole, the circuit comprising:

a diode ("*diode element D<sub>ij</sub>*") [*Fig. 1 or 5*] which includes a first pole ("*anode*" or "*cathode*" of the "*diode element D<sub>ij</sub>*") to which a predetermined data signal (the signals traveling through the "*signal electrode S<sub>j</sub>*") is applied [*Par. (0113) Lines 8-11*] and a second pole ("*cathode*" or "*anode*" of the "*diode element D<sub>ij</sub>*") which is opposite to the first pole and is connected to the first pole ("*anode*" or "*cathode*" of the *organic EL element OL<sub>ij</sub>*") of the light emitting device ("*organic EL element OL<sub>ij</sub>*") [*Par. (0113) Lines 4-8*]; and

a capacitor ("*capacitor C<sub>ij</sub>*") which includes a first terminal connected to a contact point between the first pole ("*anode*" or "*cathode*" of the *organic EL element OL<sub>ij</sub>*") of the light emitting device ("*organic EL element OL<sub>ij</sub>*") [Par. (0113) Lines 4-8] and the second pole ("*cathode*" or "*anode*" of the "*diode element D<sub>ij</sub>*") of the diode ("*diode element D<sub>ij</sub>*") and a second terminal to which a predetermined control signal (the scanning signals traveling through the "*scanning electrode Rc*") is applied.

Numao also teaches that if the diode ("*diode element D<sub>ij</sub>*") is turned on and the light emitting ("*organic EL element OL<sub>ij</sub>*") device is turned off, an electric charge which corresponds to a difference between a voltage level of the control signal (the scanning signals traveling through the "*scanning electrode Rc*") and a voltage level of the data signal (the signals traveling through the "*signal electrode S<sub>j</sub>*"), is charged, and then if the diode ("*diode element D<sub>ij</sub>*") is turned off and the light emitting device ("*organic EL element OL<sub>ij</sub>*") is turned on, the charged electric charge is discharged through the light emitting device ("*organic EL element OL<sub>ij</sub>*").

As to **claim 2**, Numao [Fig. 1] teaches the first pole ("*anode*" of the "*diode element D<sub>ij</sub>*") of the diode ("*diode element D<sub>ij</sub>*") and the first pole ("*anode*" of the *organic EL element OL<sub>ij</sub>*") of the light emitting devices ("*organic EL element OL<sub>ij</sub>*") are anodes, and the second pole ("*cathode*" of the "*diode element D<sub>ij</sub>*") of the diode and the second pole ("*cathode*" of the *organic EL element OL<sub>ij</sub>*") of the light emitting device are cathodes.

As to **claim 5**, Numao [Fig. 5] teaches the first pole ("*cathode*" of the "*diode element D<sub>ij</sub>*") of the diode ("*diode element D<sub>ij</sub>*") and the first pole ("*cathode*" of the

*organic EL element OL<sub>ij</sub>*) of the light emitting device (*“organic EL element OL<sub>ij</sub>”*) are cathodes, and the second pole (*“anode”* of the *“diode element D<sub>ij</sub>”*) of the diode and the second pole (*“anode”* of the *organic EL element OL<sub>ij</sub>*) of the light emitting device are anodes.

As to **claim 11**, most of the claim limitations have already been discussed with respect to the rejection of claim 1 except for a matrix-type display panel formed on a substrate, a predetermined data signal which is applied to the first pole of the diode through the signal line, and a predetermined control signal is applied to the second terminal of the capacitor through the scanning line.

Numao [*Fig. 1*] [*Figs. 26 and 27*] teaches a matrix-type display panel in which scanning lines (*“R<sub>c</sub>”*) and signal lines (*“S<sub>i</sub>”*) are arranged in a matrix-shape on a substrate (*“substrate 31”*) and which includes at least one cell in the vicinity of a cross point between the scanning line and the signal line [*Par. (0015), (0016), and (0017)*].

Numao also teaches a diode (*“diode element D<sub>ij</sub>”*) [*Figs. 1 and 5*] which includes a first pole (*“anode”* or *“cathode”* of the *“diode element D<sub>ij</sub>”*) to which a predetermined data signal is applied through the signal line (*“S<sub>i</sub>”*) and a capacitor (*“capacitor C<sub>ij</sub>”*) which includes a second terminal (*“cathode”* or *“anode”* of the *“diode element D<sub>ij</sub>”*) to which a predetermined control signal (the scanning signals traveling through the *“scanning electrode R<sub>c</sub>”*) is applied through the scanning line (*“scanning electrode R<sub>c</sub>”*).

As to **claim 12**, all of the claim limitations have already been discussed with respect to the rejection of claim 2.

As to **claim 15**, all of the claim limitations have already been discussed with respect to the rejection of claim 5.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Numao in view of Everitt (U.S. Pub. No. 2002/0167474 A1, herein after referred to as "Everitt").

Numao does not teach an amplifier which is connected to the first pole of the diode and amplifies a voltage level of the data signal to correspond to desired brightness of the light emitting device.

However, Everitt [*Fig. 4*] teaches an amplifier ("*operational amplifier 408*") connected to the first pole ("*cathode*") of the diode which amplifies a voltage level of scan signal [*Par. (0046)*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include Everitt's amplifiers between Numao's data driver and Numao's pixels including diodes to lower the output impedance of the data lines, thus to reduce the voltage variation of the data lines, as taught by Everitt [*Par. (0046)*].



**Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nomura et al. (U.S. Pat. No. 4,602,192) teaches a thin film integrated device wherein a plurality of thin film condensers, thin film transistors, and thin film light emitting elements, etc. are integrated.

Cok (U.S. Pub. No. 2002/0171611 A1) teaches an active matrix OLED flat-panel display including a plurality of light emitting elements and associated control circuits.

Lueder et al. (U.S. Pub. No. 2003/0016196 A1) teaches a flat panel display including a matrix of light-emitting diodes which are driven by thin film effect transistor circuits.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 27, 2006  
S.M.

AMR A. AWAD  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "Amir A. Awad", is written over a large, horizontal, oval-shaped line.